

What is claimed is:

- 1 1. A heat pipe assembly comprising:
2 a first heat pipe having a condenser and a working fluid;
3 a reservoir containing a non-condensable gas which variably permits access of the
4 working fluid to the condenser of the first heat pipe, depending on a pressure of the working
5 fluid; and
6 a second heat pipe having an evaporator that is in thermal contact with the first heat pipe.
- 1 2. The heat pipe assembly of claim 1, wherein:
2 the first heat pipe has a longitudinal direction;
3 the non-condensable gas has a moving front with a range of motion within the condenser
4 of the first heat pipe;
5 when the moving front is at a first boundary of the range of motion, the working fluid
6 does not access a portion of the condenser in which the evaporator of the second heat pipe is
7 located; and
8 when the moving front is at a second boundary of the range of motion, the working fluid
9 accesses a portion of the condenser in which the evaporator of the second heat pipe is located.
- 1 3. The heat pipe assembly of claim 1, further comprising a heat sink or a plurality of fins
2 attached to a condenser of the second heat pipe.
- 1 4. The heat pipe assembly of claim 3, wherein: the first heat pipe has no heat sink or fins
2 attached directly thereto.
- 1 5. The heat pipe assembly of claim 1, wherein at least a portion of the evaporator of the
2 second heat pipe is contained inside of the condenser of the first heat pipe.

1 6. The heat pipe assembly of claim 1, wherein the reservoir is external to the first heat pipe,
2 and communicates with the condenser of the first heat pipe.

1 7. The heat pipe assembly of claim 1, wherein the reservoir is internal to the first heat pipe.

1 8. The heat pipe assembly of claim 1, wherein:
2 the first heat pipe has an envelope, and
3 the second heat pipe has conductive members connecting the evaporator of the
4 second heat pipe to an inside of the envelope of the first heat pipe at the condenser thereof.

1 9. The heat pipe assembly of claim 8, wherein the conductive members are a plurality of
2 radial fins.

1 10. The heat pipe assembly of claim 8, further comprising a heat sink or a plurality of fins
2 attached to the condenser of the second heat pipe, wherein the first heat pipe has no heat sink or
3 fins attached directly thereto.

1 11. The heat pipe assembly of claim 1, further comprising an insulator that reduces heat
2 transfer between an envelope of the first heat pipe and an envelope of the second heat pipe.
3 condensable

1 12. The heat pipe assembly of claim 11, wherein the insulator is ceramic.

1 13. The heat pipe assembly of claim 11, wherein the envelope of the first heat pipe has a
2 section formed of a thermally insulating material at the condenser of the first heat pipe.

1 14. The heat pipe of claim 13, wherein the evaporator of the second heat pipe is located
2 within the section formed of the thermally insulating material.

1 15. The heat pipe of claim 13, wherein the non-condensable gas has a moving front with a
2 range of motion within the section formed of the thermally insulating material.